

AMENDMENTS TO THE SEQUENCE LISTING

IN THE SEQUENCE LISTING

Please replace the Sequence Listing of record with the Substitute Sequence Listing enclosed herewith.

SEQUENCE LISTING

<110> SAKAGUCHI, Nobuo

<120> TRANSGENIC MAMMAL CARRYING GANP GENE TRANSFERRED THEREINTO AND UTILIZATION THEREOF

<130> 4456-0104PUS1

<140> US 10/534,043

<141> 2005-05-05

<150> PCT/JP03/014221

<151> 2003-11-07

<150> PCT/JP02/11598

<151> 2002-11-07

<160> 105

<170> PatentIn version 3.2

<210> 1

<211> 6429

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (384)..(6299)

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Ser	Gly	Ala	Val	Gln	Trp	Leu	Ile	Ser	Gly	Cys	Pro	Gln	Ala	Leu	
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gac	ctt	tgc	tgc	cag	acc	ctt	gtt	cag	tat	gtt	gag	gat	ggg	atc	5099
Asp	Leu	Cys	Cys	Gln	Thr	Leu	Val	Gln	Tyr	Val	Glu	Asp	Gly	Ile	
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agc	cgc	gag	ttc	agc	cgt	cgg	ttt	ttc	cac	gac	agg	aga	gag	agg	5144
Ser	Arg	Glu	Phe	Ser	Arg	Arg	Phe	Phe	His	Asp	Arg	Arg	Glu	Arg	
1575				1580				1585							
cgc	ctg	gct	agc	ctg	ccc	tcc	cag	gag	cct	agc	acc	att	att	gag	5189
Arg	Leu	Ala	Ser	Leu	Pro	Ser	Gln	Glu	Pro	Ser	Thr	Ile	Ile	Glu	
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Leu Phe Asn Ser Val Leu Gln Phe Leu Ala Ser Val Val Ser Ser	
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gag cag ctg tgt gac atc tcc tgg cct gtc atg gaa ttt gcc gaa	5279
Glu Gln Leu Cys Asp Ile Ser Trp Pro Val Met Glu Phe Ala Glu	
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Val Gly Gly Ser Gln Leu Leu Pro His Leu His Trp Asn Ser Pro	
1635 1640 1645	
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Glu His Leu Ala Trp Leu Lys Gln Ala Val Leu Gly Phe Gln Leu	
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cca cag atg gac ctt cca ccc cca ggg gcc ccc tgg ctc cct gtg	5414
Pro Gln Met Asp Leu Pro Pro Pro Gly Ala Pro Trp Leu Pro Val	
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Cys Ser Met Val Ile Gln Tyr Thr Ser Gln Ile Pro Ser Ser Ser	
1680 1685 1690	
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Gln Thr Gln Pro Val Leu Gln Ser Gln Ala Glu Asn Leu Leu Cys	
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Arg Thr Tyr Gln Lys Trp Lys Asn Lys Ser Leu Ser Pro Gly Gln	
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Thr Leu Cys Ile Asn His Lys Leu Arg Asp Trp Thr Pro Pro Arg	
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Val Tyr Phe Phe Lys Asn Leu Leu Arg Lys Tyr His Val Pro Ser	
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Ser Trp Glu Gln Ala Arg Met Gln Thr Gln Arg Glu Leu Gln Leu	
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Ser His Gly Arg Ser Gly Met Arg Ser Ile His Pro Pro Thr Ser	
1800 1805 1810	

act ttt cct	act cca ttg ctt cat	gta cac cag aaa ggg	aag aaa	5864
Thr Phe Pro	Thr Pro Leu Leu His	Val His Gln Lys Gly	Lys Lys	
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aag gaa gag	agt ggc cga gag ggg	agc ctc agt aca gag	gac ctc	5909
Lys Glu Glu	Ser Gly Arg Glu Gly	Ser Leu Ser Thr Glu	Asp Leu	
1830	1835	1840		
ctg cgg ggg	gct tct gca gaa gag	ctc ctg gca cag agt	ctg tcc	5954
Leu Arg Gly	Ala Ser Ala Glu Glu	Leu Leu Ala Gln Ser	Leu Ser	
1845	1850	1855		
agc agt ctt	ctg gaa gag aag gaa	gag aac aag agg ttt	gaa gat	5999
Ser Ser Leu	Leu Glu Glu Lys Glu	Glu Asn Lys Arg Phe	Glu Asp	
1860	1865	1870		
caa ctt cag	cag tgg tta tcg caa	gac tca cag gca ttc	aca gag	6044
Gln Leu Gln	Gln Trp Leu Ser Gln	Asp Ser Gln Ala Phe	Thr Glu	
1875	1880	1885		
tca act cgg	ctt cct ctc tac ctc	cct cag acg cta gtg	tcc ttt	6089
Ser Thr Arg	Leu Pro Leu Tyr Leu	Pro Gln Thr Leu Val	Ser Phe	
1890	1895	1900		
cct gat tct	atc aaa act cag acc	atg gtg aaa aca tct	aca agt	6134
Pro Asp Ser	Ile Lys Thr Gln Thr	Met Val Lys Thr Ser	Thr Ser	
1905	1910	1915		
cct cag aat	tca gga aca gga aag	cag ttg agg ttc tca	gag gca	6179
Pro Gln Asn	Ser Gly Thr Gly Lys	Gln Leu Arg Phe Ser	Glu Ala	
1920	1925	1930		
tcc ggt tca	tcc ctg acg gaa aag	ctg aag ctc ctg gaa	agg ctg	6224
Ser Gly Ser	Ser Leu Thr Glu Lys	Leu Lys Leu Leu Glu	Arg Leu	
1935	1940	1945		
atc cag agc	tca agg gcg gaa gaa	gca gcc tcc gag ctg	cac ctc	6269
Ile Gln Ser	Ser Arg Ala Glu Glu	Ala Ala Ser Glu Leu	His Leu	
1950	1955	1960		
tct gca ctg	ctg gag atg gtg gac	atg tag ctgtctgacg	ggagacggat	6319
Ser Ala Leu	Leu Glu Met Val Asp	Met		
1965	1970			
ctctaattca	taatgctttg tctgtattca	attgtgttat agatgctgtt	ggaaatgtga	6379
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Leu Ala Phe Ser Gln Val Pro Ser Phe Ala Thr Pro Ser Gly Gly Ser	50	55	60
His Ser Ser Ser Leu Pro Ala Phe Gly Leu Thr Gln Thr Ser Ser Val	65	70	75
Gly Leu Phe Ser Ser Leu Glu Ser Thr Pro Ser Phe Ala Ala Thr Ser	85	90	95
Ser Ser Ser Val Pro Gly Asn Thr Ala Phe Ser Phe Lys Ser Thr Ser	100	105	110
Ser Val Gly Val Phe Pro Ser Gly Ala Thr Phe Gly Pro Glu Thr Gly	115	120	125
Glu Val Ala Gly Ser Gly Phe Arg Lys Thr Glu Phe Lys Phe Lys Pro	130	135	140
Leu Glu Asn Ala Val Phe Lys Pro Ile Pro Gly Pro Glu Ser Glu Pro	145	150	155
Glu Lys Thr Gln Ser Gln Ile Ser Ser Gly Phe Phe Thr Phe Ser His	165	170	175
Pro Val Gly Ser Gly Ser Gly Gly Leu Thr Pro Phe Ser Phe Pro Gln	180	185	190
Val Thr Asn Ser Ser Val Thr Ser Ser Ser Phe Ile Phe Ser Lys Pro	195	200	205
Val Thr Ser Asn Thr Pro Ala Phe Ala Ser Pro Leu Ser Asn Gln Asn	210	215	220
Val Glu Glu Glu Lys Arg Val Ser Thr Ser Ala Phe Gly Ser Ser Asn	225	230	235
			240

Ser Ser Phe Ser Thr Phe Pro Thr Ala Ser Pro Gly Ser Leu Gly Glu
 245 250 255

Pro Phe Pro Ala Asn Lys Pro Ser Leu Arg Gln Gly Cys Glu Glu Ala
 260 265 270

Ile Ser Gln Val Glu Pro Leu Pro Thr Leu Met Lys Gly Leu Lys Arg
 275 280 285

Lys Glu Asp Gln Asp Arg Ser Pro Arg Arg His Cys His Glu Ala Ala
 290 295 300

Glu Asp Pro Asp Pro Leu Ser Arg Gly Asp His Pro Pro Asp Lys Arg
 305 310 315 320

Pro Val Arg Leu Asn Arg Pro Arg Gly Gly Thr Leu Phe Gly Arg Thr
 325 330 335

Ile Gln Glu Val Phe Lys Ser Asn Lys Glu Ala Gly Arg Leu Gly Ser
 340 345 350

Lys Glu Ser Lys Glu Ser Gly Phe Ala Glu Pro Gly Glu Ser Asp His
 355 360 365

Ala Ala Val Pro Gly Gly Ser Gln Ser Thr Met Val Pro Ser Arg Leu
 370 375 380

Pro Ala Val Thr Lys Glu Glu Glu Glu Ser Arg Asp Glu Lys Glu Asp
 385 390 395 400

Ser Leu Arg Gly Lys Ser Val Arg Gln Ser Lys Arg Arg Glu Glu Trp
 405 410 415

Ile Tyr Ser Leu Gly Gly Val Ser Ser Leu Glu Leu Thr Ala Ile Gln
 420 425 430

Cys Lys Asn Ile Pro Asp Tyr Leu Asn Asp Arg Ala Ile Leu Glu Lys
 435 440 445

His Phe Ser Lys Ile Ala Lys Val Gln Arg Val Phe Thr Arg Arg Ser
 450 455 460

Lys Lys Leu Ala Val Ile His Phe Phe Asp His Ala Ser Ala Ala Leu
 465 470 475 480

Ala Arg Lys Lys Gly Lys Gly Leu His Lys Asp Val Val Ile Phe Trp
 485 490 495

His Lys Lys Lys Ile Ser Pro Ser Lys Lys Leu Phe Pro Leu Lys Glu
 500 505 510

Lys Leu Gly Glu Ser Glu Ala Ser Gln Gly Ile Glu Asp Ser Pro Phe
 515 520 525

Gln His Ser Pro Leu Ser Lys Pro Ile Val Arg Pro Ala Ala Gly Ser
 530 535 540

Leu Leu Ser Lys Ser Ser Pro Val Lys Lys Pro Ser Leu Leu Lys Met
 545 550 555 560

His Gln Phe Glu Ala Asp Pro Phe Asp Ser Gly Ser Glu Gly Ser Glu
 565 570 575

Gly Leu Gly Ser Cys Val Ser Ser Leu Ser Thr Leu Ile Gly Thr Val
 580 585 590

Ala Asp Thr Ser Glu Glu Lys Tyr Arg Leu Leu Asp Gln Arg Asp Arg
 595 600 605

Ile Met Arg Gln Ala Arg Val Lys Arg Thr Asp Leu Asp Lys Ala Arg
 610 615 620

Ala Phe Val Gly Thr Cys Pro Asp Met Cys Pro Glu Lys Glu Arg Tyr
 625 630 635 640

Leu Arg Glu Thr Arg Ser Gln Leu Ser Val Phe Glu Val Val Pro Gly
 645 650 655

Thr Asp Gln Val Asp His Ala Ala Ala Val Lys Glu Tyr Ser Arg Ser
 660 665 670

Ser Ala Asp Gln Glu Glu Pro Leu Pro His Glu Leu Arg Pro Ser Ala
 675 680 685

Val Leu Ser Arg Thr Met Asp Tyr Leu Val Thr Gln Ile Met Asp Gln
690 695 700

Lys Glu Gly Ser Leu Arg Asp Trp Tyr Asp Phe Val Trp Asn Arg Thr
705 710 715 720

Arg Gly Ile Arg Lys Asp Ile Thr Gln Gln His Leu Cys Asp Pro Leu
725 730 735

Thr Val Ser Leu Ile Glu Lys Cys Thr Arg Phe His Ile His Cys Ala
740 745 750

His Phe Met Cys Glu Glu Pro Met Ser Ser Phe Asp Ala Lys Ile Asn
755 760 765

Asn Glu Asn Met Thr Lys Cys Leu Gln Ser Leu Lys Glu Met Tyr Gln
770 775 780

Asp Leu Arg Asn Lys Gly Val Phe Cys Ala Ser Glu Ala Glu Phe Gln
785 790 795 800

Gly Tyr Asn Val Leu Leu Asn Leu Asn Lys Gly Asp Ile Leu Arg Glu
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Val Gln Gln Phe His Pro Asp Val Arg Asn Ser Pro Glu Val Asn Phe
820 825 830

Ala Val Gln Ala Phe Ala Ala Leu Asn Ser Asn Asn Phe Val Arg Phe
835 840 845

Phe Lys Leu Val Gln Ser Ala Ser Tyr Leu Asn Ala Cys Leu Leu His
850 855 860

Cys Tyr Phe Asn Gln Ile Arg Lys Asp Ala Leu Arg Ala Leu Asn Val
865 870 875 880

Ala Tyr Thr Val Ser Thr Gln Arg Ser Thr Val Phe Pro Leu Asp Gly
885 890 895

Val Val Arg Met Leu Leu Phe Arg Asp Ser Glu Glu Ala Thr Asn Phe
900 905 910

Leu Asn Tyr His Gly Leu Thr Val Ala Asp Gly Cys Val Glu Leu Asn

915	920	925
Arg Ser Ala Phe Leu Glu Pro Glu Gly Leu Cys Lys Ala Arg Lys Ser		
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Val Phe Ile Gly Arg Lys Leu Thr Val Ser Val Gly Glu Val Val Asn		
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Gly Gly Pro Leu Pro Pro Val Pro Arg His Thr Pro Val Cys Ser Phe		
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Asn Ser Gln Asn Lys Tyr Val Gly Glu Ser Leu Ala Thr Glu Leu Pro		
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Ile Ser Thr Gln Arg Ala Gly Gly Asp Pro Ala Gly Gly Gly Arg Gly		
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Glu Asp Cys Glu Ala Glu Val Asp Leu Pro Thr Leu Ala Val Leu		
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Pro Gln Pro Pro Pro Ala Ser Ser Ala Thr Pro Ala Leu His Val		
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Gln Pro Leu Ala Pro Ala Ala Ala Pro Ser Leu Leu Gln Ala Ser		
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Thr Gln Pro Glu Val Leu Leu Pro Lys Pro Ala Pro Val Tyr Ser		
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Asp Ser Asp Leu Val Gln Val Val Asp Glu Leu Ile Gln Glu Ala		
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Leu Gln Val Asp Cys Glu Glu Val Ser Ser Ala Gly Ala Ala Tyr		
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Val Ala Ala Ala Leu Gly Val Ser Asn Ala Ala Val Glu Asp Leu		
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Ile Thr Ala Ala Thr Thr Gly Ile Leu Arg His Val Ala Ala Glu		
1115	1120	1125
Glu Val Ser Met Glu Arg Gln Arg Leu Glu Glu Glu Lys Gln Arg		
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Ala	Glu	Glu	Glu	Arg	Leu	Lys	Gln	Glu	Arg	Glu	Leu	Met	Leu	Thr
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Gln	Leu	Ser	Glu	Gly	Leu	Ala	Ala	Glu	Leu	Thr	Glu	Leu	Thr	Val
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Thr	Glu	Cys	Val	Trp	Glu	Thr	Cys	Ser	Gln	Glu	Leu	Gln	Ser	Ala
1175						1180					1185			
Val	Lys	Ile	Asp	Gln	Lys	Val	Arg	Val	Ala	Arg	Cys	Cys	Glu	Ala
1190						1195					1200			
Val	Cys	Ala	His	Leu	Val	Asp	Leu	Phe	Leu	Ala	Glu	Glu	Ile	Phe
1205						1210					1215			
Gln	Thr	Ala	Lys	Glu	Thr	Leu	Gln	Glu	Leu	Gln	Cys	Phe	Cys	Lys
1220						1225					1230			
Tyr	Leu	Gln	Arg	Trp	Arg	Glu	Ala	Val	Ala	Ala	Arg	Lys	Lys	Phe
1235						1240					1245			
Arg	Arg	Gln	Met	Arg	Ala	Phe	Pro	Ala	Ala	Pro	Cys	Cys	Val	Asp
1250						1255					1260			
Val	Asn	Asp	Arg	Leu	Gln	Ala	Leu	Val	Pro	Ser	Ala	Glu	Cys	Pro
1265						1270					1275			
Ile	Thr	Glu	Glu	Asn	Leu	Ala	Lys	Gly	Leu	Leu	Asp	Leu	Gly	His
1280						1285					1290			
Ala	Gly	Lys	Val	Gly	Val	Ser	Cys	Thr	Arg	Leu	Arg	Arg	Leu	Arg
1295						1300					1305			
Asn	Lys	Thr	Ala	His	Gln	Ile	Lys	Val	Gln	His	Phe	His	Gln	Gln
1310						1315					1320			
Leu	Leu	Arg	Asn	Ala	Ala	Trp	Ala	Pro	Leu	Asp	Leu	Pro	Ser	Ile
1325						1330					1335			
Val	Ser	Glu	His	Leu	Pro	Met	Lys	Gln	Lys	Arg	Arg	Phe	Trp	Lys
1340						1345					1350			

Leu Val 1355	Leu Val	Leu Pro	Asp 1360	Val Glu Glu Gln Thr 1365	Pro Glu Ser
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Asp Asp 1385	Ser Met	Val Gly	Asp 1390	Ile Gly Asp Asn Ala 1395	Gly Asp Ile
Gln Thr 1400	Leu Ser	Val Phe	Asn 1405	Thr Leu Ser Ser Lys 1410	Gly Asp Gln
Thr Val 1415	Ser Val	Asn Val	Cys 1420	Ile Lys Val Ala His 1425	Gly Thr Leu
Ser Asp 1430	Ser Ala	Leu Asp	Ala 1435	Val Glu Thr Gln Lys 1440	Asp Leu Leu
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Glu Glu 1460	Val Ala	Glu Glu	Glu 1465	Leu Ser Trp Leu Ser 1470	Ala Leu Leu
Gln Leu 1475	Lys Gln	Leu Leu	Gln 1480	Ala Lys Pro Phe Gln 1485	Pro Ala Leu
Pro Leu 1490	Val Val	Leu Val	Pro 1495	Ser Ser Arg Gly Asp 1500	Ser Ala Gly
Arg Ala 1505	Val Glu	Asp Gly	Leu 1510	Met Leu Gln Asp Leu 1515	Val Ser Ala
Lys Leu 1520	Ile Ser	Asp Tyr	Ile 1525	Val Val Glu Ile Pro 1530	Asp Ser Val
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Leu Ile 1550	Ser Gly	Cys Pro	Gln 1555	Ala Leu Asp Leu Cys 1560	Cys Gln Thr

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 Arg Phe Phe His Asp Arg Arg Glu Arg Arg Leu Ala Ser Leu Pro
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 Ser Gln Glu Pro Ser Thr Ile Ile Glu Leu Phe Asn Ser Val Leu
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 Gln Phe Leu Ala Ser Val Val Ser Ser Glu Gln Leu Cys Asp Ile
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 Ser Trp Pro Val Met Glu Phe Ala Glu Val Gly Gly Ser Gln Leu
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 Leu Pro His Leu His Trp Asn Ser Pro Glu His Leu Ala Trp Leu
 1640 1645 1650
 Lys Gln Ala Val Leu Gly Phe Gln Leu Pro Gln Met Asp Leu Pro
 1655 1660 1665
 Pro Pro Gly Ala Pro Trp Leu Pro Val Cys Ser Met Val Ile Gln
 1670 1675 1680
 Tyr Thr Ser Gln Ile Pro Ser Ser Ser Gln Thr Gln Pro Val Leu
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 Gln Ser Gln Ala Glu Asn Leu Leu Cys Arg Thr Tyr Gln Lys Trp
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 Lys Asn Lys Ser Leu Ser Pro Gly Gln Glu Leu Gly Pro Ser Val
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 Ala Leu Ser Glu Asp Gly Gln Ile Cys Val Tyr Phe Phe Lys Asn
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 Leu Leu Arg Lys Tyr His Val Pro Ser Ser Trp Glu Gln Ala Arg

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Lys Glu Glu Asn Lys Arg Phe Glu Asp Gln Leu Gln Gln Trp Leu				
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Ser Gln Asp Ser Gln Ala Phe Thr Glu Ser Thr Arg Leu Pro Leu				
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Tyr Leu Pro Gln Thr Leu Val Ser Phe Pro Asp Ser Ile Lys Thr				
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Gln Thr Met Val Lys Thr Ser Thr Ser Pro Gln Asn Ser Gly Thr				
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Gly Lys Gln Leu Arg Phe Ser Glu Ala Ser Gly Ser Ser Leu Thr				
1925		1930		1935
Glu Lys Leu Lys Leu Leu Glu Arg Leu Ile Gln Ser Ser Arg Ala				
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Phe Ser Gly Gln Gln Pro Ser Ala Phe Ser Ala Ser Ser Ser Asn Val																
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Gly Thr Leu Pro Ser Lys Pro Pro Phe Arg Phe Gly Gln Pro Ser Leu																
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Phe Gly Gln Asn Ser Thr Leu Ser Gly Lys Ser Ser Gly Phe Ser Gln																
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Thr	Asp	Ser	Leu	Gly	Gly	Leu	Ser	Pro	Ser	Glu	Val	Thr	Ala	Ile	Gln		
			425				430					435					
tgc	aag	aac	atc	cct	gac	tac	ctc	aac	gac	agg	acc	att	ctg	gag	aac		1399
Cys	Lys	Asn	Ile	Pro	Asp	Tyr	Leu	Asn	Asp	Arg	Thr	Ile	Leu	Glu	Asn		
			440				445				450						
cat	ttt	ggc	aaa	att	gct	aaa	gtg	cag	cgc	atc	ttt	acc	agg	cgc	agc		1447
His	Phe	Gly	Lys	Ile	Ala	Lys	Val	Gln	Arg	Ile	Phe	Thr	Arg	Arg	Ser		
					460				465						470		
aaa	aag	ctt	gca	gtg	gta	cat	ttc	ttt	gat	cat	gca	tct	gca	gcc	ctg		1495
Lys	Lys	Leu	Ala	Val	Val	His	Phe	Phe	Asp	His	Ala	Ser	Ala	Ala	Leu		
				475					480					485			
gct	aga	aag	aag	ggg	aaa	agt	ttg	cat	aaa	gac	atg	gct	atc	ttt	tgg		1543
Ala	Arg	Lys	Lys	Gly	Lys	Ser	Leu	His	Lys	Asp	Met	Ala	Ile	Phe	Trp		
			490				495					500					
cac	agg	aag	aaa	ata	agc	ccc	aat	aag	aaa	ccc	ttt	tcc	ctg	aag	gag		1591
His	Arg	Lys	Lys	Ile	Ser	Pro	Asn	Lys	Lys	Pro	Phe	Ser	Leu	Lys	Glu		
			505				510					515					
aag	aaa	cca	ggt	gac	ggt	gaa	gtc	agc	ccg	agc	aca	gag	gat	gca	ccc		1639
Lys	Lys	Pro	Gly	Asp	Gly	Glu	Val	Ser	Pro	Ser	Thr	Glu	Asp	Ala	Pro		
			520			525					530						
ttt	cag	cac	tct	cct	ctt	ggc	aag	gcc	gca	ggg	agg	act	ggt	gct	agc		1687
Phe	Gln	His	Ser	Pro	Leu	Gly	Lys	Ala	Ala	Gly	Arg	Thr	Gly	Ala	Ser		
					540				545						550		
agc	ctc	ctg	aat	aaa	agc	tct	cca	gtg	aag	aag	cca	agt	ctt	cta	aag		1735
Ser	Leu	Leu	Asn	Lys	Ser	Ser	Pro	Val	Lys	Lys	Pro	Ser	Leu	Leu	Lys		
				555					560					565			
gcc	cac	caa	ttc	gag	gga	gac	tct	ttt	gac	tca	gcc	tcc	gag	ggc	tcc		1783
Ala	His	Gln	Phe	Glu	Gly	Asp	Ser	Phe	Asp	Ser	Ala	Ser	Glu	Gly	Ser		
			570				575						580				
gag	ggc	ctc	ggg	cca	tgt	gtg	ctc	tcc	ctc	agt	acc	ctg	ata	ggc	act		1831
Glu	Gly	Leu	Gly	Pro	Cys	Val	Leu	Ser	Leu	Ser	Thr	Leu	Ile	Gly	Thr		
			585				590					595					
gtg	gct	gag	aca	tcc	aag	gag	aag	tac	cgc	ctg	ctt	gac	cag	aga	gac		1879
Val	Ala	Glu	Thr	Ser	Lys	Glu	Lys	Tyr	Arg	Leu	Leu	Asp	Gln	Arg	Asp		
			600			605					610						
agg	atc	atg	cgg	caa	gct	cgg	gtg	aag	aga	acc	gat	ctg	gac	aaa	gcg		1927
Arg	Ile	Met	Arg	Gln	Ala	Arg	Val	Lys	Arg	Thr	Asp	Leu	Asp	Lys	Ala		
				620					625						630		
agg	act	ttt	gtt	ggc	acc	tgc	ctg	gat	atg	tgt	cct	gag	aag	gag	agg		1975
Arg	Thr	Phe	Val	Gly	Thr	Cys	Leu	Asp	Met	Cys	Pro	Glu	Lys	Glu	Arg		

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tac atg cgg gag acc cgt agc cag ctg agc gtg ttc gaa gtg gtc cca Tyr Met Arg Glu Thr Arg Ser Gln Leu Ser Val Phe Glu Val Val Pro 650 655 660			2023
ggg act gac cag gtg gac cac gca gca gct gtg aaa gag tac agt cgg Gly Thr Asp Gln Val Asp His Ala Ala Ala Val Lys Glu Tyr Ser Arg 665 670 675			2071
tcc tcg gcg gat cag gag gag ccc ctg ccc cac gag ctg cgg ccc ttg Ser Ser Ala Asp Gln Glu Glu Pro Leu Pro His Glu Leu Arg Pro Leu 680 685 690			2119
cca gtg ctc agc agg acc atg gac tac ctg gtg acc cag atc atg gac Pro Val Leu Ser Arg Thr Met Asp Tyr Leu Val Thr Gln Ile Met Asp 695 700 705 710			2167
cag aag gag ggc agc ctg cgg gat tgg tat gac ttc gtg tgg aac cgc Gln Lys Glu Gly Ser Leu Arg Asp Trp Tyr Asp Phe Val Trp Asn Arg 715 720 725			2215
acg cgt ggc ata cgg aag gat atc acg cag cag cac ctc tgt gac ccc Thr Arg Gly Ile Arg Lys Asp Ile Thr Gln Gln His Leu Cys Asp Pro 730 735 740			2263
ctg acg gtg tcc ctg att gag aag tgc acc cgg ttt cac atc cac tgt Leu Thr Val Ser Leu Ile Glu Lys Cys Thr Arg Phe His Ile His Cys 745 750 755			2311
gcc cac ttc atg tgt gag gag ccc atg tcc tcc ttt gat gcc aag atc Ala His Phe Met Cys Glu Glu Pro Met Ser Ser Phe Asp Ala Lys Ile 760 765 770			2359
aat aat gag aac atg acc aag tgc ctg cag agc ctg aag gag atg tac Asn Asn Glu Asn Met Thr Lys Cys Leu Gln Ser Leu Lys Glu Met Tyr 775 780 785 790			2407
cag gac ctg aga aac aag ggt gtc ttc tgt gcc agc gaa gcg gag ttc Gln Asp Leu Arg Asn Lys Gly Val Phe Cys Ala Ser Glu Ala Glu Phe 795 800 805			2455
cag ggc tac aat gtt ctg ctc agt ctc aac aag gga gac atc cta aga Gln Gly Tyr Asn Val Leu Leu Ser Leu Asn Lys Gly Asp Ile Leu Arg 810 815 820			2503
gaa gta caa cag ttc cat cct gct gtt aga aac tca tct gag gtg aaa Glu Val Gln Gln Phe His Pro Ala Val Arg Asn Ser Ser Glu Val Lys 825 830 835			2551
ttt gct gtt cag gct ttt gct gca ttg aac agt aat aat ttt gtg aga Phe Ala Val Gln Ala Phe Ala Ala Leu Asn Ser Asn Asn Phe Val Arg 840 845 850			2599
ttt ttc aaa ctg gtc cag tca gct tct tac ctg aac gct tgt ctt tta Phe Phe Lys Leu Val Gln Ser Ala Ser Tyr Leu Asn Ala Cys Leu Leu 855 860 865 870			2647

cac tgt tac ttc agt cag atc cgc aag gat gct ctc cgg gcg ctc aac	2695
His Cys Tyr Phe Ser Gln Ile Arg Lys Asp Ala Leu Arg Ala Leu Asn	
875 880 885	
ttt gcg tac acg gtg agc aca cag cga tct acc atc ttt ccc ctg gat	2743
Phe Ala Tyr Thr Val Ser Thr Gln Arg Ser Thr Ile Phe Pro Leu Asp	
890 895 900	
ggt gtg gtg cgc atg ctg ctg ttc aga gac tgt gaa gag gcc acc gac	2791
Gly Val Val Arg Met Leu Leu Phe Arg Asp Cys Glu Glu Ala Thr Asp	
905 910 915	
ttc ctc acc tgc cac ggc ctc acc gtt tcc gac ggc tgt gtg gag ctg	2839
Phe Leu Thr Cys His Gly Leu Thr Val Ser Asp Gly Cys Val Glu Leu	
920 925 930	
aac cgg tct gca ttc ctg gaa cca gag gga tta tcc aag acc agg aag	2887
Asn Arg Ser Ala Phe Leu Glu Pro Glu Gly Leu Ser Lys Thr Arg Lys	
935 940 945 950	
tcg gtg ttt att act agg aag ctg acg gtg tca gtc ggg gaa att gtg	2935
Ser Val Phe Ile Thr Arg Lys Leu Thr Val Ser Val Gly Glu Ile Val	
955 960 965	
aac gga ggg cca ttg ccc ccc gtc cct cgt cac acc cct gtg tgc agc	2983
Asn Gly Gly Pro Leu Pro Pro Val Pro Arg His Thr Pro Val Cys Ser	
970 975 980	
ttc aac tcc cag aac aag tac atc ggg gag agc ctg gcc gcg gag ctg	3031
Phe Asn Ser Gln Asn Lys Tyr Ile Gly Glu Ser Leu Ala Ala Glu Leu	
985 990 995	
ccc gtc agc acc cag aga ccc ggc tcc gac aca gtg ggc gga ggg	3076
Pro Val Ser Thr Gln Arg Pro Gly Ser Asp Thr Val Gly Gly Gly	
1000 1005 1010	
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Arg Gly Glu Glu Cys Gly Val Glu Pro Asp Ala Pro Leu Ser Ser	
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ctc cca cag tct cta cca gcc cct gcg ccc tca cca gtg cct ctg	3166
Leu Pro Gln Ser Leu Pro Ala Pro Ala Pro Ser Pro Val Pro Leu	
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Pro Pro Val Leu Ala Leu Thr Pro Ser Val Ala Pro Ser Leu Phe	
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Gln Leu Ser Val Gln Pro Glu Pro Pro Pro Pro Glu Pro Val Pro	
1060 1065 1070	
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Met Tyr Ser Asp Glu Asp Leu Ala Gln Val Val Asp Glu Leu Ile	
1075 1080 1085	

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Gln Glu Ala Leu Gln Arg Asp	Cys Glu Glu Val Gly	Ser Ala Gly	
1090	1095	1100	
gct gcc tac gca gct gcc gcc	ctg ggt gtt tct aat	gct gct atg	3391
Ala Ala Tyr Ala Ala Ala Ala	Leu Gly Val Ser Asn	Ala Ala Met	
1105	1110	1115	
gag gat ttg tta aca gct gca	acc acg ggc att ttg	agg cac att	3436
Glu Asp Leu Leu Thr Ala Ala	Thr Thr Gly Ile Leu	Arg His Ile	
1120	1125	1130	
gca gct gaa gaa gtg tct aag	gaa aga gag cga agg	gag cag gag	3481
Ala Ala Glu Glu Val Ser Lys	Glu Arg Glu Arg Arg	Glu Gln Glu	
1135	1140	1145	
agg cag cgg gct gaa gag gaa	agg ttg aaa caa gag	aga gag ctg	3526
Arg Gln Arg Ala Glu Glu Glu	Arg Leu Lys Gln Glu	Arg Glu Leu	
1150	1155	1160	
gtg tta agt gag ctg agc cag	ggc ctg gcc gtg gag	ctg atg gaa	3571
Val Leu Ser Glu Leu Ser Gln	Gly Leu Ala Val Glu	Leu Met Glu	
1165	1170	1175	
cgc gtg atg atg gag ttt gtg	agg gaa acc tgc tcc	cag gag ttg	3616
Arg Val Met Met Glu Phe Val	Arg Glu Thr Cys Ser	Gln Glu Leu	
1180	1185	1190	
aag aat gca gta gag aca gac	cag agg gtc cgt gtg	gcc cgt tgc	3661
Lys Asn Ala Val Glu Thr Asp	Gln Arg Val Arg Val	Ala Arg Cys	
1195	1200	1205	
tgt gag gat gtc tgt gcc cac	tta gtg gac ttg ttt	ctc gtg gag	3706
Cys Glu Asp Val Cys Ala His	Leu Val Asp Leu Phe	Leu Val Glu	
1210	1215	1220	
gaa atc ttc cag act gca aag	gag acc ctc cag gag	ctt cag tgc	3751
Glu Ile Phe Gln Thr Ala Lys	Glu Thr Leu Gln Glu	Leu Gln Cys	
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Phe Cys Lys Tyr Leu Gln Arg	Trp Arg Glu Ala Val	Thr Ala Arg	
1240	1245	1250	
aag aaa ctg agg cgc caa atg	cgg gct ttc cct gct	gcg ccc tgc	3841
Lys Lys Leu Arg Arg Gln Met	Arg Ala Phe Pro Ala	Ala Pro Cys	
1255	1260	1265	
tgc gtg gac gtg agc gac cgg	ctg agg gcg ctg gcg	ccc agc gca	3886
Cys Val Asp Val Ser Asp Arg	Leu Arg Ala Leu Ala	Pro Ser Ala	
1270	1275	1280	
gag tgc ccc att gct gaa gag	aac ctg gcc agg ggc	ctc ctg gac	3931
Glu Cys Pro Ile Ala Glu Glu	Asn Leu Ala Arg Gly	Leu Leu Asp	
1285	1290	1295	
ctg ggc cat gca ggg aga ttg	ggc atc tct tgc acc	agg tta agg	3976

Leu Gly	His Ala Gly Arg	Leu Gly Ile Ser Cys Thr	Arg Leu Arg	
1300		1305	1310	
cgg ctc	aga aac aag aca	gct cac cag atg aag gtt	cag cac ttc	4021
Arg Leu	Arg Asn Lys Thr	Ala His Gln Met Lys Val	Gln His Phe	
1315		1320	1325	
tac cag	cag ctg ctg agt gat	gtg gca tgg gcg tct	ctg gac ctg	4066
Tyr Gln	Gln Leu Leu Ser	Asp Val Ala Trp Ala Ser	Leu Asp Leu	
1330		1335	1340	
cca tcc	ctc gtg gct gag cac	ctc cct ggg agg cag	gag cat gtg	4111
Pro Ser	Leu Val Ala Glu	His Leu Pro Gly Arg	Gln Glu His Val	
1345		1350	1355	
ttt tgg	aag ctg gtg ctg gtg	ttg ccg gat gta gag	gag cag tcc	4156
Phe Trp	Lys Leu Val Leu Val	Leu Pro Asp Val Glu	Glu Gln Ser	
1360		1365	1370	
cca gag	agt tgt ggc aga att	cta gca aat tgg tta	aaa gtc aag	4201
Pro Glu	Ser Cys Gly Arg	Ile Leu Ala Asn Trp	Leu Lys Val Lys	
1375		1380	1385	
ttc atg	gga gat gaa ggc tca	gtg gat gac aca tcc	agc gat gct	4246
Phe Met	Gly Asp Glu Gly Ser	Val Asp Asp Thr Ser	Ser Asp Ala	
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ggg ggg	att cag acg ctt tcg	ctt ttc aac tca ctt	agc agc aaa	4291
Gly Gly	Ile Gln Thr Leu Ser	Leu Phe Asn Ser Leu	Ser Ser Lys	
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ggg gat	cag atg att tct gtt	aac gtg tgt ata aag	gtg gcc cat	4336
Gly Asp	Gln Met Ile Ser Val	Asn Val Cys Ile Lys	Val Ala His	
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ggc gcc	ctc agt gat ggt gcc	att gat gct gtg gag	aca cag aag	4381
Gly Ala	Leu Ser Asp Gly Ala	Ile Asp Ala Val Glu	Thr Gln Lys	
1435		1440	1445	
gac ctc	ctg gga gcc agt ggg	ctc atg ctg ctg ctt	ccc ccc aaa	4426
Asp Leu	Leu Gly Ala Ser Gly	Leu Met Leu Leu Leu	Pro Pro Lys	
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atg aag	agt gag gac atg gca	gag gag gac gtg tac	tgg ctg tcg	4471
Met Lys	Ser Glu Asp Met Ala	Glu Glu Asp Val Tyr	Trp Leu Ser	
1465		1470	1475	
gcc ttg	ctg cag ctc aag cag	ctc ctg cag gct aag	ccc ttc cag	4516
Ala Leu	Leu Gln Leu Lys Gln	Leu Leu Gln Ala Lys	Pro Phe Gln	
1480		1485	1490	
cct gcg	ctt cct ctg gtg gtt	ctt gtg cct agc cca	gga ggg gac	4561
Pro Ala	Leu Pro Leu Val Val	Leu Val Pro Ser Pro	Gly Gly Asp	
1495		1500	1505	
gcc gtt	gag aag gaa gta gaa	gat ggt ctg atg cta	cag gac ttg	4606
Ala Val	Glu Lys Glu Val Glu	Asp Gly Leu Met Leu	Gln Asp Leu	

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gtt tca gct aag ctg att tca Val Ser Ala Lys Leu Ile Ser 1525	gat tac act gtt acc Asp Tyr Thr Val Thr 1530	gag atc cct Glu Ile Pro 1535	4651
gat acc att aat gat cta caa Asp Thr Ile Asn Asp Leu Gln 1540	ggt tca act aag gtt Gly Ser Thr Lys Val 1545	ttg caa gca Leu Gln Ala 1550	4696
gtg cag tgg ctg gtt tcc cac Val Gln Trp Leu Val Ser His 1555	tgc ccc cat tcc ctt Cys Pro His Ser Leu 1560	gac ctc tgc Asp Leu Cys 1565	4741
tgc cag act ctc att cag tac Cys Gln Thr Leu Ile Gln Tyr 1570	gtc gaa gac ggg att Val Glu Asp Gly Ile 1575	ggc cat gag Gly His Glu 1580	4786
ttt agt ggc cgc ttt ttc cat Phe Ser Gly Arg Phe Phe His 1585	gac aga aga gag agg Asp Arg Arg Glu Arg 1590	cgt ctg ggc Arg Leu Gly 1595	4831
ggt ctt gct tct cag gag cct Gly Leu Ala Ser Gln Glu Pro 1600	ggc gcc atc att gag Gly Ala Ile Ile Glu 1605	ctg ttt aac Leu Phe Asn 1610	4876
agt gtg ctg cag ttc ctg gct Ser Val Leu Gln Phe Leu Ala 1615	tct gtg gtg tcc tct Ser Val Val Ser Ser 1620	gaa cag ctg Glu Gln Leu 1625	4921
tgt gac ctg tcc tgg cct gtc Cys Asp Leu Ser Trp Pro Val 1630	act gag ttt gct gag Thr Glu Phe Ala Glu 1635	gca ggg ggc Ala Gly Gly 1640	4966
agc cgg ctg ctt cct cac ctg Ser Arg Leu Leu Pro His Leu 1645	cac tgg aat gcc cca His Trp Asn Ala Pro 1650	gag cac ctg Glu His Leu 1655	5011
gcc tgg ctg aag cag gct gtg Ala Trp Leu Lys Gln Ala Val 1660	ctc ggg ttc cag ctt Leu Gly Phe Gln Leu 1665	ccg cag atg Pro Gln Met 1670	5056
gac ctt cca ccc ctg ggg gcc Asp Leu Pro Pro Leu Gly Ala 1675	ccc tgg ctc ccc gtg Pro Trp Leu Pro Val 1680	tgc tcc atg Cys Ser Met 1685	5101
gtt gtc cag tac gcc tcc cag Val Val Gln Tyr Ala Ser Gln 1690	atc ccc agc tca cgc Ile Pro Ser Ser Arg 1695	cag aca cag Gln Thr Gln 1700	5146
cct gtc ctc cag tcc cag gtg Pro Val Leu Gln Ser Gln Val 1705	gag aac ctg ctc cac Glu Asn Leu Leu His 1710	aga acc tac Arg Thr Tyr 1715	5191
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ccc tcg gtc atg gag atc cca	tgg gat gat ctt atc gcc ttg tgt	5281
Pro Ser Val Met Glu Ile Pro	Trp Asp Asp Leu Ile Ala Leu Cys	
1735	1740 1745	
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Ile Asn His Lys Leu Arg Asp	Trp Thr Pro Pro Arg Leu Pro Val	
1750	1755 1760	
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Thr Ser Glu Ala Leu Ser Glu	Asp Gly Gln Ile Cys Val Tyr Phe	
1765	1770 1775	
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Phe Lys Asn Asp Leu Lys Lys	Tyr Asp Val Pro Leu Ser Trp Glu	
1780	1785 1790	
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Gln Ala Arg Leu Gln Thr Gln	Lys Glu Leu Gln Leu Arg Glu Gly	
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cgt ttg gca ata aag cct ttt	cat cct tct gca aac aat ttt ccc	5506
Arg Leu Ala Ile Lys Pro Phe	His Pro Ser Ala Asn Asn Phe Pro	
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ata cca ttg ctt cac atg cac	cgt aac tgg aag agg agc aca gag	5551
Ile Pro Leu Leu His Met His	Arg Asn Trp Lys Arg Ser Thr Glu	
1825	1830 1835	
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Cys Ala Gln Glu Gly Arg Ile	Pro Ser Thr Glu Asp Leu Met Arg	
1840	1845 1850	
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Gly Ala Ser Ala Glu Glu Leu	Leu Ala Gln Cys Leu Ser Ser Ser	
1855	1860 1865	
ctg ctg ctg gag aaa gaa gag	aac aag agg ttt gaa gat cag ctt	5686
Leu Leu Leu Glu Lys Glu Glu	Asn Lys Arg Phe Glu Asp Gln Leu	
1870	1875 1880	
cag caa tgg ttg tct gaa gac	tca gga gca ttt acg gat tta act	5731
Gln Gln Trp Leu Ser Glu Asp	Ser Gly Ala Phe Thr Asp Leu Thr	
1885	1890 1895	
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Ser Leu Pro Leu Tyr Leu Pro	Gln Thr Leu Val Ser Leu Ser His	
1900	1905 1910	
act att gaa cct gtg atg aaa	aca tct gta act act agc cca cag	5821
Thr Ile Glu Pro Val Met Lys	Thr Ser Val Thr Thr Ser Pro Gln	
1915	1920 1925	
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Ser Asp Met Met Arg Glu Gln	Leu Gln Leu Ser Glu Ala Thr Gly	
1930	1935 1940	

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 Thr Cys Leu Gly Glu Arg Leu Lys His Leu Glu Arg Leu Ile Arg
 1945 1950 1955

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 Ser Ser Arg Glu Glu Glu Val Ala Ser Glu Leu His Leu Ser Ala
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 Leu Leu Asp Met Val Asp Ile
 1975 1980

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Ser Ser Gly Phe Ser Gln Val Ser Ser Phe Pro Ala Ser Ser Gly Val
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Ser His Ser Ser Ser Val Gln Thr Leu Gly Phe Thr Gln Thr Ser Ser
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Val Gly Pro Phe Ser Gly Leu Glu His Thr Ser Thr Phe Val Ala Thr
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Lys Ser Pro Thr Ser Val Gly Ala Phe Pro Ser Thr Ser Ala Phe Gly
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Gln Glu Ala Gly Glu Ile Val Asn Ser Gly Phe Gly Lys Thr Glu Phe

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 Ser Phe Lys Pro Leu Glu Asn Ala Val Phe Lys Pro Ile Leu Gly Ala
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 Glu Ser Glu Pro Glu Lys Thr Gln Ser Gln Ile Ala Ser Gly Phe Phe
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 Thr Phe Ser His Pro Ile Ser Ser Ala Pro Gly Gly Leu Ala Pro Phe
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 Ser Phe Pro Gln Val Thr Ser Ser Ser Ala Thr Thr Ser Asn Phe Thr
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 Ala Leu Ser Asn Gln Asn Val Glu Glu Glu Lys Arg Gly Pro Lys Ser
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 Ala Val Leu Gly Glu Pro Phe Gln Ala Ser Lys Ala Gly Val Arg Gln
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 Gly Cys Glu Glu Ala Val Ser Gln Val Glu Pro Leu Pro Ser Leu Met
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 Lys Gly Leu Lys Arg Lys Glu Asp Gln Asp Arg Ser Pro Arg Arg His
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 Gly His Glu Pro Ala Glu Asp Ser Asp Pro Leu Ser Arg Gly Asp His
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 Pro Pro Asp Lys Arg Pro Val Arg Leu Asn Arg Pro Arg Gly Gly Thr
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 Gly Arg Leu Gly Asn Lys Glu Ala Lys Lys Glu Thr Gly Phe Val Glu
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Ser Ala Glu Ser Asp His Met Ala Ile Pro Gly Gly Asn Gln Ser Val
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Leu Ala Pro Ser Arg Ile Pro Gly Val Asn Lys Glu Glu Glu Thr Glu
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Ser Arg Glu Lys Lys Glu Asp Ser Leu Arg Gly Thr Pro Ala Arg Gln
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Ser Asn Arg Ser Glu Ser Thr Asp Ser Leu Gly Gly Leu Ser Pro Ser
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Glu Val Thr Ala Ile Gln Cys Lys Asn Ile Pro Asp Tyr Leu Asn Asp
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Arg Thr Ile Leu Glu Asn His Phe Gly Lys Ile Ala Lys Val Gln Arg
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Ile Phe Thr Arg Arg Ser Lys Lys Leu Ala Val Val His Phe Phe Asp
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His Ala Ser Ala Ala Leu Ala Arg Lys Lys Gly Lys Ser Leu His Lys
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Asp Met Ala Ile Phe Trp His Arg Lys Lys Ile Ser Pro Asn Lys Lys
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Pro Phe Ser Leu Lys Glu Lys Lys Pro Gly Asp Gly Glu Val Ser Pro
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Ser Thr Glu Asp Ala Pro Phe Gln His Ser Pro Leu Gly Lys Ala Ala
 530 535 540

Gly Arg Thr Gly Ala Ser Ser Leu Leu Asn Lys Ser Ser Pro Val Lys
 545 550 555 560

Lys Pro Ser Leu Leu Lys Ala His Gln Phe Glu Gly Asp Ser Phe Asp
 565 570 575

Ser Ala Ser Glu Gly Ser Glu Gly Leu Gly Pro Cys Val Leu Ser Leu
 580 585 590

Ser Thr Leu Ile Gly Thr Val Ala Glu Thr Ser Lys Glu Lys Tyr Arg
595 600 605

Leu Leu Asp Gln Arg Asp Arg Ile Met Arg Gln Ala Arg Val Lys Arg
610 615 620

Thr Asp Leu Asp Lys Ala Arg Thr Phe Val Gly Thr Cys Leu Asp Met
625 630 635 640

Cys Pro Glu Lys Glu Arg Tyr Met Arg Glu Thr Arg Ser Gln Leu Ser
645 650 655

Val Phe Glu Val Val Pro Gly Thr Asp Gln Val Asp His Ala Ala Ala
660 665 670

Val Lys Glu Tyr Ser Arg Ser Ser Ala Asp Gln Glu Glu Pro Leu Pro
675 680 685

His Glu Leu Arg Pro Leu Pro Val Leu Ser Arg Thr Met Asp Tyr Leu
690 695 700

Val Thr Gln Ile Met Asp Gln Lys Glu Gly Ser Leu Arg Asp Trp Tyr
705 710 715 720

Asp Phe Val Trp Asn Arg Thr Arg Gly Ile Arg Lys Asp Ile Thr Gln
725 730 735

Gln His Leu Cys Asp Pro Leu Thr Val Ser Leu Ile Glu Lys Cys Thr
740 745 750

Arg Phe His Ile His Cys Ala His Phe Met Cys Glu Glu Pro Met Ser
755 760 765

Ser Phe Asp Ala Lys Ile Asn Asn Glu Asn Met Thr Lys Cys Leu Gln
770 775 780

Ser Leu Lys Glu Met Tyr Gln Asp Leu Arg Asn Lys Gly Val Phe Cys
785 790 795 800

Ala Ser Glu Ala Glu Phe Gln Gly Tyr Asn Val Leu Leu Ser Leu Asn
805 810 815

Lys Gly Asp Ile Leu Arg Glu Val Gln Gln Phe His Pro Ala Val Arg
 820 825 830

Asn Ser Ser Glu Val Lys Phe Ala Val Gln Ala Phe Ala Ala Leu Asn
 835 840 845

Ser Asn Asn Phe Val Arg Phe Phe Lys Leu Val Gln Ser Ala Ser Tyr
 850 855 860

Leu Asn Ala Cys Leu Leu His Cys Tyr Phe Ser Gln Ile Arg Lys Asp
 865 870 875 880

Ala Leu Arg Ala Leu Asn Phe Ala Tyr Thr Val Ser Thr Gln Arg Ser
 885 890 895

Thr Ile Phe Pro Leu Asp Gly Val Val Arg Met Leu Leu Phe Arg Asp
 900 905 910

Cys Glu Glu Ala Thr Asp Phe Leu Thr Cys His Gly Leu Thr Val Ser
 915 920 925

Asp Gly Cys Val Glu Leu Asn Arg Ser Ala Phe Leu Glu Pro Glu Gly
 930 935 940

Leu Ser Lys Thr Arg Lys Ser Val Phe Ile Thr Arg Lys Leu Thr Val
 945 950 955 960

Ser Val Gly Glu Ile Val Asn Gly Gly Pro Leu Pro Pro Val Pro Arg
 965 970 975

His Thr Pro Val Cys Ser Phe Asn Ser Gln Asn Lys Tyr Ile Gly Glu
 980 985 990

Ser Leu Ala Ala Glu Leu Pro Val Ser Thr Gln Arg Pro Gly Ser Asp
 995 1000 1005

Thr Val Gly Gly Gly Arg Gly Glu Glu Cys Gly Val Glu Pro Asp
 1010 1015 1020

Ala Pro Leu Ser Ser Leu Pro Gln Ser Leu Pro Ala Pro Ala Pro
 1025 1030 1035

Ser Pro Val Pro Leu Pro Pro Val Leu Ala Leu Thr Pro Ser Val

1040		1045		1050
Ala Pro Ser Leu Phe Gln Leu Ser Val Gln Pro Glu Pro Pro Pro				
1055		1060		1065
Pro Glu Pro Val Pro Met Tyr Ser Asp Glu Asp Leu Ala Gln Val				
1070		1075		1080
Val Asp Glu Leu Ile Gln Glu Ala Leu Gln Arg Asp Cys Glu Glu				
1085		1090		1095
Val Gly Ser Ala Gly Ala Ala Tyr Ala Ala Ala Ala Leu Gly Val				
1100		1105		1110
Ser Asn Ala Ala Met Glu Asp Leu Leu Thr Ala Ala Thr Thr Gly				
1115		1120		1125
Ile Leu Arg His Ile Ala Ala Glu Glu Val Ser Lys Glu Arg Glu				
1130		1135		1140
Arg Arg Glu Gln Glu Arg Gln Arg Ala Glu Glu Glu Arg Leu Lys				
1145		1150		1155
Gln Glu Arg Glu Leu Val Leu Ser Glu Leu Ser Gln Gly Leu Ala				
1160		1165		1170
Val Glu Leu Met Glu Arg Val Met Met Glu Phe Val Arg Glu Thr				
1175		1180		1185
Cys Ser Gln Glu Leu Lys Asn Ala Val Glu Thr Asp Gln Arg Val				
1190		1195		1200
Arg Val Ala Arg Cys Cys Glu Asp Val Cys Ala His Leu Val Asp				
1205		1210		1215
Leu Phe Leu Val Glu Glu Ile Phe Gln Thr Ala Lys Glu Thr Leu				
1220		1225		1230
Gln Glu Leu Gln Cys Phe Cys Lys Tyr Leu Gln Arg Trp Arg Glu				
1235		1240		1245
Ala Val Thr Ala Arg Lys Lys Leu Arg Arg Gln Met Arg Ala Phe				
1250		1255		1260

Pro	Ala	Ala	Pro	Cys	Cys	Val	Asp	Val	Ser	Asp	Arg	Leu	Arg	Ala
1265						1270					1275			
Leu	Ala	Pro	Ser	Ala	Glu	Cys	Pro	Ile	Ala	Glu	Glu	Asn	Leu	Ala
1280						1285					1290			
Arg	Gly	Leu	Leu	Asp	Leu	Gly	His	Ala	Gly	Arg	Leu	Gly	Ile	Ser
1295						1300					1305			
Cys	Thr	Arg	Leu	Arg	Arg	Leu	Arg	Asn	Lys	Thr	Ala	His	Gln	Met
1310						1315					1320			
Lys	Val	Gln	His	Phe	Tyr	Gln	Gln	Leu	Leu	Ser	Asp	Val	Ala	Trp
1325						1330					1335			
Ala	Ser	Leu	Asp	Leu	Pro	Ser	Leu	Val	Ala	Glu	His	Leu	Pro	Gly
1340						1345					1350			
Arg	Gln	Glu	His	Val	Phe	Trp	Lys	Leu	Val	Leu	Val	Leu	Pro	Asp
1355						1360					1365			
Val	Glu	Glu	Gln	Ser	Pro	Glu	Ser	Cys	Gly	Arg	Ile	Leu	Ala	Asn
1370						1375					1380			
Trp	Leu	Lys	Val	Lys	Phe	Met	Gly	Asp	Glu	Gly	Ser	Val	Asp	Asp
1385						1390					1395			
Thr	Ser	Ser	Asp	Ala	Gly	Gly	Ile	Gln	Thr	Leu	Ser	Leu	Phe	Asn
1400						1405					1410			
Ser	Leu	Ser	Ser	Lys	Gly	Asp	Gln	Met	Ile	Ser	Val	Asn	Val	Cys
1415						1420					1425			
Ile	Lys	Val	Ala	His	Gly	Ala	Leu	Ser	Asp	Gly	Ala	Ile	Asp	Ala
1430						1435					1440			
Val	Glu	Thr	Gln	Lys	Asp	Leu	Leu	Gly	Ala	Ser	Gly	Leu	Met	Leu
1445						1450					1455			
Leu	Leu	Pro	Pro	Lys	Met	Lys	Ser	Glu	Asp	Met	Ala	Glu	Glu	Asp
1460						1465					1470			

Val	Tyr	Trp	Leu	Ser	Ala	Leu	Leu	Gln	Leu	Lys	Gln	Leu	Leu	Gln
1475						1480					1485			
Ala	Lys	Pro	Phe	Gln	Pro	Ala	Leu	Pro	Leu	Val	Val	Leu	Val	Pro
1490						1495					1500			
Ser	Pro	Gly	Gly	Asp	Ala	Val	Glu	Lys	Glu	Val	Glu	Asp	Gly	Leu
1505						1510					1515			
Met	Leu	Gln	Asp	Leu	Val	Ser	Ala	Lys	Leu	Ile	Ser	Asp	Tyr	Thr
1520						1525					1530			
Val	Thr	Glu	Ile	Pro	Asp	Thr	Ile	Asn	Asp	Leu	Gln	Gly	Ser	Thr
1535						1540					1545			
Lys	Val	Leu	Gln	Ala	Val	Gln	Trp	Leu	Val	Ser	His	Cys	Pro	His
1550						1555					1560			
Ser	Leu	Asp	Leu	Cys	Cys	Gln	Thr	Leu	Ile	Gln	Tyr	Val	Glu	Asp
1565						1570					1575			
Gly	Ile	Gly	His	Glu	Phe	Ser	Gly	Arg	Phe	Phe	His	Asp	Arg	Arg
1580						1585					1590			
Glu	Arg	Arg	Leu	Gly	Gly	Leu	Ala	Ser	Gln	Glu	Pro	Gly	Ala	Ile
1595						1600					1605			
Ile	Glu	Leu	Phe	Asn	Ser	Val	Leu	Gln	Phe	Leu	Ala	Ser	Val	Val
1610						1615					1620			
Ser	Ser	Glu	Gln	Leu	Cys	Asp	Leu	Ser	Trp	Pro	Val	Thr	Glu	Phe
1625						1630					1635			
Ala	Glu	Ala	Gly	Gly	Ser	Arg	Leu	Leu	Pro	His	Leu	His	Trp	Asn
1640						1645					1650			
Ala	Pro	Glu	His	Leu	Ala	Trp	Leu	Lys	Gln	Ala	Val	Leu	Gly	Phe
1655						1660					1665			
Gln	Leu	Pro	Gln	Met	Asp	Leu	Pro	Pro	Leu	Gly	Ala	Pro	Trp	Leu
1670						1675					1680			

Pro Val 1685	Cys Ser Met Val Val 1690	Gln Tyr Ala Ser Gln 1695	Ile Pro Ser
Ser Arg 1700	Gln Thr Gln Pro Val 1705	Leu Gln Ser Gln Val 1710	Glu Asn Leu
Leu His 1715	Arg Thr Tyr Cys Arg 1720	Trp Lys Ser Lys Ser 1725	Pro Ser Pro
Val His 1730	Gly Ala Gly Pro Ser 1735	Val Met Glu Ile Pro 1740	Trp Asp Asp
Leu Ile 1745	Ala Leu Cys Ile Asn 1750	His Lys Leu Arg Asp 1755	Trp Thr Pro
Pro Arg 1760	Leu Pro Val Thr Ser 1765	Glu Ala Leu Ser Glu 1770	Asp Gly Gln
Ile Cys 1775	Val Tyr Phe Phe Lys 1780	Asn Asp Leu Lys Lys 1785	Tyr Asp Val
Pro Leu 1790	Ser Trp Glu Gln Ala 1795	Arg Leu Gln Thr Gln 1800	Lys Glu Leu
Gln Leu 1805	Arg Glu Gly Arg Leu 1810	Ala Ile Lys Pro Phe 1815	His Pro Ser
Ala Asn 1820	Asn Phe Pro Ile Pro 1825	Leu Leu His Met His 1830	Arg Asn Trp
Lys Arg 1835	Ser Thr Glu Cys Ala 1840	Gln Glu Gly Arg Ile 1845	Pro Ser Thr
Glu Asp 1850	Leu Met Arg Gly Ala 1855	Ser Ala Glu Glu Leu 1860	Leu Ala Gln
Cys Leu 1865	Ser Ser Ser Leu Leu 1870	Leu Glu Lys Glu Glu 1875	Asn Lys Arg
Phe Glu 1880	Asp Gln Leu Gln Gln 1885	Trp Leu Ser Glu Asp 1890	Ser Gly Ala
Phe Thr	Asp Leu Thr Ser Leu	Pro Leu Tyr Leu Pro	Gln Thr Leu

1895

1900

1905

Val Ser Leu Ser His Thr Ile Glu Pro Val Met Lys Thr Ser Val
1910 1915 1920

Thr Thr Ser Pro Gln Ser Asp Met Met Arg Glu Gln Leu Gln Leu
1925 1930 1935

Ser Glu Ala Thr Gly Thr Cys Leu Gly Glu Arg Leu Lys His Leu
1940 1945 1950

Glu Arg Leu Ile Arg Ser Ser Arg Glu Glu Glu Val Ala Ser Glu
1955 1960 1965

Leu His Leu Ser Ala Leu Leu Asp Met Val Asp Ile
1970 1975 1980

<210> 5
<211> 33
<212> DNA
<213> Artificial sequence

<220>
<223> LVH3 Primer

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ctataaccat ggaccatgga catactttgt tcc 33

<210> 6
<211> 36
<212> DNA
<213> Artificial sequence

<220>
<223> XbaI-CH1-Cu Primer

<400> 6
tgcattgcatt ctagagttgc cgttgggggtg ctggac 36

<210> 7
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> Primer used in the preparation of GANP-Transgenic (Tg) Mouse

<400> 7
tcccgccttc cagctgtgac 20

<210> 8
 <211> 20
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Primer used in the preparation of GANP-Transgenic (Tg) Mouse

 <400> 8
 gtgctgctgt gttatgtcct 20

 <210> 9
 <211> 30
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> neo2 Primer

 <400> 9
 gcctgcttgc cgaatatcat ggtggaaaat 30

 <210> 10
 <211> 28
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> CGK3'-2 Primer

 <400> 10
 ggcaccaagc atgcacggag tacacaga 28

 <210> 11
 <211> 26
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> GANP1-5' Primer

 <400> 11
 ggggatccat acccggtgaa cccctt 26

 <210> 12
 <211> 28
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> GANP1-3' Primer

<400> 12
 gggtcgacgc gcacagactt tcccctga 28

<210> 13
 <211> 28
 <212> DNA
 <213> Artificial sequence

<220>
 <223> GANP2-5' Primer

<400> 13
 gggaattctc ccgccttcca gctgtgac 28

<210> 14
 <211> 28
 <212> DNA
 <213> Artificial sequence

<220>
 <223> GANP2-3' Primer

<400> 14
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<210> 15
 <211> 28
 <212> DNA
 <213> Artificial sequence

<220>
 <223> GANP3-5' Primer

<400> 15
 gggaattcca tgagctgaga ccctcagc 28

<210> 16
 <211> 28
 <212> DNA
 <213> Artificial sequence

<220>
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<400> 16
 gggtcgactg aggatgcagg aggcggct 28

<210> 17
 <211> 28
 <212> DNA
 <213> Artificial sequence

<220>
 <223> GANP4-5' Primer

 <400> 17
 gggaattcta cgttggagag agcctggc 28

 <210> 18
 <211> 28
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> GANP4-3' Primer

 <400> 18
 gggtcgacca tgctgtcatc tcctgtga 28

 <210> 19
 <211> 28
 <212> DNA
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 <220>
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 gggaattcga gaacctggcc aagggctc 28

 <210> 20
 <211> 28
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> GANP5-3'Primer

 <400> 20
 gggtcgacga aaaaccgacg gctgaact 28

 <210> 21
 <211> 28
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> GANP6-5' Primer

 <400> 21
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 <210> 22

<211> 28
 <212> DNA
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 <220>
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 <400> 22
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 <210> 23
 <211> 28
 <212> DNA
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 <400> 23
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 <210> 24
 <211> 28
 <212> DNA
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 <220>
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 <400> 24
 ggctcgagca tgtccaccat ctccagca 28

 <210> 25
 <211> 41
 <212> DNA
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 <220>
 <223> Gp-gfp-5' Primer

 <400> 25
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 <210> 26
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 <220>
 <223> Gp-gfp-3' Primer

 <400> 26
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 <211> 41
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 <220>
 <223> Gsac-gfp-5' Primer

 <400> 27
 ggggatccga attccaccat gtccgagggc cttggttctt g 41

 <210> 28
 <211> 20
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Gsac-gfp-3' Primer

 <400> 28
 ctgtcttggt tctaagccgc 20

 <210> 29
 <211> 41
 <212> DNA
 <213> Artificial sequence

 <220>
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 <400> 29
 ggggatccga attccaccat ggagaacctg gccaaaggtc t 41

 <210> 30
 <211> 27
 <212> DNA
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 <220>
 <223> Gmap80-gfp-3' Primer

 <400> 30
 gaggacttgt agatgttttc accatgg 27

 <210> 31
 <211> 58
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> FLAG-Gp-5' Primer

<400> 31
gggaattcca ccatggatta caaggatgac gacgataagg cagtcttcaa ccgatacc 58

<210> 32
<211> 28
<212> DNA
<213> Artificial sequence

<220>
<223> FLAG-Gp-3' Primer

<400> 32
gggaattcct ccgggtctcc ctcaagta 28

<210> 33
<211> 59
<212> DNA
<213> Artificial sequence

<220>
<223> FLAG-Gsac-5' Primer

<400> 33
gggaattcca ccatggatta caaggatgac gacgataagt ccgagggcct tggttcttg 59

<210> 34
<211> 28
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<213> Artificial sequence

<220>
<223> FLAGGsac-3' Primer

<400> 34
gggaattcgc tgtcttgttt ctaagccg 28

<210> 35
<211> 59
<212> DNA
<213> Artificial sequence

<220>
<223> FLAG-Gmap-5' Primer

<400> 35
gggaattcca ccatggatta caaggatgac gacgataagg agaacctggc caagggctct 59

<210> 36
<211> 28
<212> DNA
<213> Artificial sequence

<220>
 <223> FLAG-Gmap-3' Primer
 <400> 36
 gggaattctg aggacttgta gatgtttt

28

<210> 37
 <211> 98
 <212> PRT
 <213> Mus musculus

<220>
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 <222> (1)..(98)
 <223> Fig. 10 WT

<400> 37

Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Arg Gly Leu Glu Trp Ile
 35 40 45

Gly Arg Ile Asp Pro Asn Ser Gly Gly Thr Lys Tyr Asn Glu Lys Phe
 50 55 60

Lys Ser Lys Ala Thr Leu Thr Val Asp Lys Pro Ser Ser Thr Ala Tyr
 65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg

<210> 38
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)

<223> Fig. 10 WT

<400> 38
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 39
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(39)
<223> Fig. 10: WT-4

<400> 39
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc gagt 294

<210> 40
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: WT-5

<400> 40
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc atctacttaa tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaact tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 41
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-6
 <400> 41
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agttacttga tgcactgggt gaagcagggg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc gagt 294

<210> 42
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-9
 <400> 42
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaaga cttctggcta ctccttcacc agctacttta tacactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaaat tcaagagcag ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 43
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-10
 <400> 43
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60

tcttgcaagg cttctggcta caccttcacc agctactgga tgcactggat gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tactaggtag 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 44
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: WT-11

<400> 44
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcttgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtaggca aaccctccag cacagcctac 240
atgcggctca gcagcctgac atctgaggac tctgcggtct attattgtgc acgt 294

<210> 45
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: WT-14

<400> 45
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcttgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgttgaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 46
<211> 294
<212> DNA
<213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-16

 <400> 46
 caggccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcttgcaagg cttctggcta caccttcacc aactacttga tgcactgggt gaagcagagg 120
 cctggacgag gccttgaggat gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc gagt 294

<210> 47
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-17

 <400> 47
 caggccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcttgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgaggat gattggaagg attgaccta atagtgggtg ttctaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcaccta gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 48
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-18

 <400> 48
 caggccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcttgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgaggat gattggaagg attgaccta atagtgggtg tactaagtac 180

aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgatct attattgtgc aaga 294

<210> 49
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-19

<400> 49
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgttccta atagtgggtga tactaagtac 180
 aatgagaagt tcaagaacaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 50
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: WT-20

<400> 50
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtta tactaggtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctcc 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attactgtgc aaga 294

<210> 51
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)

<223> Fig. 10: WT-21

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<400> 51
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg      60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg      120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac      180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac      240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aagg          294
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<210> 52
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: WT-22

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<400> 52
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg      60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg      120
cctggacgag gccttgagtg gattggaggg attgaccta atagtgggta tactaggtac      180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctcc      240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga          294
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<210> 53
<211> 98
<212> PRT
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(98)
<223> Fig. 10 TG

<400> 53

Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Arg Gly Leu Glu Trp Ile

35

40

45

Gly Arg Ile Asp Pro Asn Ser Gly Gly Thr Lys Tyr Asn Glu Lys Phe
 50 55 60

Lys Ser Lys Ala Thr Leu Thr Val Asp Lys Pro Ser Ser Thr Ala Tyr
 65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg

<210> 54
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10 TG.

<400> 54
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctactgga tgactgggt gaagcagagg 120
 cctggacgag gccttgagt gattggaagg attgatccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 55
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-3

<400> 55
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctacctga tgactgggt gaagcagagg 120
 cctggacgag gccttgagt gattggaagg attgatccta atcgtgggtg tactaagtac 180

aatgagaagt tcattaacaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 56
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: Tg-4

<400> 56
caggtccaac tgcagcagcc tggggctgaa cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc aactacttga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 57
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: Tg-5

<400> 57
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac acctgaggac tctgcggtct attattgtgc aaga 294

<210> 58
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature

<222> (1)..(294)

<223> Fig. 10: Tg-7

<400> 58

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cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg      60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcaccgggt gaagcagagg      120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac      180
aatgagaagt tcaagagcaa ggccacactg actgtagaca gaccctccag cacagcctac      240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga          294
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<210> 59

<211> 294

<212> DNA

<213> Mus musculus

<220>

<221> misc_feature

<222> (1)..(294)

<223> Fig. 10: Tg-8

<400> 59

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cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctgggtcttc agtgaagctg      60
tcctgcaagc cttctggcta caccttcacc acctactgga tacactgggt gaggcagagg      120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac      180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac      240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga          294
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<210> 60

<211> 294

<212> DNA

<213> Mus musculus

<220>

<221> misc_feature

<222> (1)..(294)

<223> Fig. 10: Tg-9

<400> 60

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cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg      60
tcctgcaagg cttctggcta caccttcacc agctacttga tgcaactgggt gaagcagagg      120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac      180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac      240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga          294
```

<210> 61
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-10

<400> 61
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcaac agttactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgatccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aatcctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 62
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-11

<400> 62
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgatccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccttccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 63
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-12

<400> 63
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgatccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 64
<211> 294
<212> DNA
<213> Mus musculus
<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: Tg-13

<400> 64
cagggtccaac tgcagcagcc tggggctgag cttgtgaagt ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagtgg 120
cctggacgag gccttgagtg gattggaagg attgatccta atagtgggtg tactaagtac 180
aatgagaagt tcaagaacaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgtc atctgaggac tctgcggtct attattgtgc aaga 294

<210> 65
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: Tg-14

<400> 65
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaaag cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgatccca atagtgggtg tactaagtac 180
aatgagaagt tcaggagcag ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 66

<211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-15

 <400> 66
 caggtccgac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc ggctactgga tggactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg atcgatccta atagtgggtg cactaagtac 180
 aaagagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 67
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-16

 <400> 67
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcaat agctacttga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgatccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagaacaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcacctca gcagcctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 68
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-17

 <400> 68
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120

cctggacgag gccttgagtg gattggaagg attgaccta attctggtgg tactaagtac 180
aatgagaagt tcaagaccaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 69
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: Tg-18

<400> 69
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta cattttcacc agctacctga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atcgtggtgg tactaagtac 180
aatgagaagt tcattaacaa ggccacactg actgtagaca aaccctccac cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 70
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 10: Tg-20

<400> 70
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgtgg tactaggtac 180
aatgagaggt tcaagagcaa ggccacactg tctgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 71
<211> 294
<212> DNA
<213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-21

 <400> 71
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 72
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 10: Tg-23

 <400> 72
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atactgggtg tactaagtac 180
 gatgagaagt tcaagaccaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagtctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 73
 <211> 98
 <212> PRT
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(98)
 <223> Fig. 20A-20F Cre-flox/+

<400> 73

 Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15

 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Arg Gly Leu Glu Trp Ile
 35 40 45

Gly Arg Ile Asp Pro Asn Ser Gly Gly Thr Lys Tyr Asn Glu Lys Phe
 50 55 60

Lys Ser Lys Ala Thr Leu Thr Val Asp Lys Pro Ser Ser Thr Ala Tyr
 65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg

<210> 74
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20A-20F Cre-flox/+

<400> 74
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgatccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 75
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 1-5

<400> 75
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgattctg 60

tcctgcaagg cttctgccta caccttcacc agttactgga tgcactgggt gaagcagagg	120
cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tactaagtac	180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac	240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga	294

<210> 76
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 1-6

<400> 76	
caggtccaac tgcagcagcc tggggctgaa cttgtgaagc ctggggcttc agtgaagctg	60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg	120
cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tactaagtac	180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac	240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga	294

<210> 77
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 3-1

<400> 77	
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg	60
tcctgcaagg cttctggcta caccttcacc agctatagga tgcactgggt gaagcagagg	120
cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg taaaaagtac	180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac	240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga	294

<210> 78
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 3-2

<400> 78
 caggtccaac tgcagcagcc tggggctgag cttgtgaggc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc acctacttga ttcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta tgagtgggtg cagtaggtac 180
 aatgagtact tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac actgcggtcg attattgtgc aaga 294

<210> 79
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 3-3

<400> 79
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaacctg 60
 tcctgcaagg cttctggcta aattttcacc agctagtggga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacattg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 80
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 4-2

<400> 80
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctgggggttc agtgaagctg 60
 tcctgcaagg cttctgggta caccctcacc acctacttaa tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180

aatgagaagt tcaagagcaa ggccacactg actatagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aagg 294

<210> 81
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 4-4

<400> 81
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctgggggttc agtgaagctg 60
tcctgcaagg cttctggcta caccctcacc acctacttaa tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actatagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aagg 294

<210> 82
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 4-6

<400> 82
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccctcacc acctacttaa tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actatagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aagg 294

<210> 83
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)

<223> Fig. 20: 1-8

<400> 83
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc acctacttga tacactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgatccta aaagtgggtg tactaagtac 180
agtgagaagt tcaagagcaa ggccacactg actgtagacc aaccctccag cacagcctac 240
atgcagttca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 84
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 1-10

<400> 84
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc acctacttga ttactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg gttgatccta atactgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 85
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 4-7

<400> 85
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctgggggttc agtgaagctg 60
tcctgcaagg cttctggcta caccctcacc acctacttaa tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgatccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca acagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 86
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 6-1

<400> 86
 cagggtccaac tgcagcagcc tgggactgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggctt caccttcacc agctacttga tgcactgggt gaaacagagg 120
 cctggacgag gccttgagtg gattggaagg attgatccta atagtggtag tactaagtac 180
 aatgagacgt tcaagaacaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 87
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 6-2

<400> 87
 cagggtccaac tgcagcagcc tggggctgag ctagtgaagc ctggggcttc agtgaagggtg 60
 tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgatccta atagtggtag tactaagtac 180
 aatgagaagt tcaagaccaa ggccacactg actgtagaca aaccctccag tacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 88
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 7-1

<400> 88
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60

tcctgcaagg cttctggcta caccttcacc aactacttga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tactaagtac 180
 aatgagacgt tcaagaacaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 89
 <211> 98
 <212> PRT
 <213> Mus musculus
 <220>
 <221> misc_feature
 <222> (1)..(98)
 <223> Fig.20G-20L B-Ganp-/-
 <400> 89

Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Arg Gly Leu Glu Trp Ile
 35 40 45

Gly Arg Ile Asp Pro Asn Ser Gly Gly Thr Lys Tyr Asn Glu Lys Phe
 50 55 60

Lys Ser Lys Ala Thr Leu Thr Val Asp Lys Pro Ser Ser Thr Ala Tyr
 65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg

<210> 90
 <211> 294
 <212> DNA
 <213> Mus musculus
 <220>
 <221> misc_feature

<222> (1)..(98)
 <223> Fig.20G-20L B-Ganp-/-

<400> 90
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 91
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 1-1

<400> 91
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagtaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgggtct attattgtgc acga 294

<210> 92
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 1-5

<400> 92
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgattctg 60
 tcctgcaagg cttctgccta caccttcacc agttactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcgggtct attattgtgc aaga 294

<210> 93
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 1-6

 <400> 93
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcaactca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 94
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 2-2

 <400> 94
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttcgggcta caccttcacc aactattgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg ttctaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgcagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attactgtgc aaga 294

<210> 95
 <211> 294
 <212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 2-3

 <400> 95

cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc aactactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagt attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagaacaa ggccacacta actgtggaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 96
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 4-3

<400> 96
cagggtccaac tgcagcagcc tgggactgaa ctggtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctacttga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaaat attaactcta atagtgggtg tactaactac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aatcctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attactgtgc aaga 294

<210> 97
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 4-4

<400> 97
cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc aactactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atgggtgggtg tactaagtac 180
aatgagaagt tcaagaccaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 98
<211> 294

<212> DNA
 <213> Mus musculus

 <220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 6-1

 <400> 98
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta cactttaacc agctactgga tgactgggt gaagcagagg 120
 cctggacgag gccttgagt gattggaagg attgaccta atagtgttg tactaagtat 180
 aatgaggagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct actattgtgc aaga 294

<210> 99
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 6-2

<400> 99
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta cactttaacc agctactgga tgactgggt gaagcagagg 120
 cctggacgag gccttgagt gattggaagg attgaccta atagtgttg tactaagtat 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct actattgtgc aaga 294

<210> 100
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 7-1

<400> 100
 cagggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctgctgga tgactgggt gaagcagagg 120

cctggacgag gccttgagtg gattggaagg attgaccta atggtggtgg tactaagttc 180
gatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctat 240
atgcaactca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 101
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 8-1

<400> 101
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc aactacttga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atagtgggtg tactaagtac 180
aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 102
<211> 294
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(294)
<223> Fig. 20: 8-2

<400> 102
caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
tcctgcaagg cttctggcta caccttcacc agctactgga tgcactgggt gaagcagagg 120
cctggacgag gccttgagtg gattggaagg attgaccta atggtggtgg tactaaatac 180
aatgagaggt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
atgcagttca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 103
<211> 294
<212> DNA
<213> Mus musculus

<220>

<221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 9-1

<400> 103
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc aactactgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tgccaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccttcag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 104
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 9-3

<400> 104
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaaga cttctggcta caccttcacc acctactggc tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattgggagg attgataccta atagtggcgg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aaccctccag cacagcctac 240
 atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga 294

<210> 105
 <211> 294
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> (1)..(294)
 <223> Fig. 20: 9-4

<400> 105
 caggtccaac tgcagcagcc tggggctgag cttgtgaagc ctggggcttc agtgaagctg 60
 tcctgcaagg cttctggcta caccttcacc agctattgga tgcactgggt gaagcagagg 120
 cctggacgag gccttgagtg gattggaagg attgataccta atagtgggtg tactaagtac 180
 aatgagaagt tcaagagcaa ggccacactg actgtagaca aatcctccag cacagcctac 240

atgcagctca gcagcctgac atctgaggac tctgcggtct attattgtgc aaga

294